



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,839	04/21/2004	Nikolaos Koudas	ATT 2002-0457	5311
26652	7590	07/10/2007		
AT&T CORP. ROOM 2A207 ONE AT&T WAY BEDMINSTER, NJ 07921			EXAMINER RAYYAN, SUSAN F	
			ART UNIT 2167	PAPER NUMBER
			MAIL DATE 07/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/828,839	Applicant(s) KOUDAS ET AL.	
	Examiner Susan F. Rayyan	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received:

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Claims 1-5, 11-24 are canceled.
2. Applicant's arguments, see amendment, filed April 12, 2007, with respect to the rejection(s) of claim(s) 6-10 under 35 USC 101 as being directed towards non-statutory have been fully considered and are persuasive.
3. In the response mailed on January 12, 2007 Examiner indicated claims 6-10 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Upon further search and consideration the Examiner has withdrawn the objection and a new ground(s) of rejection has been made (see below).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2167

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0003004 A1 issued to Surajit Chaudhuri et al. ("Chaudhuri") in view of US 2004/0111408 issued to Maureen Caudill et al ("Caudill").

As per claim 6 Chaudhuri teaches:

preprocessing a database having a relation to produce an index (see paragraph 42, lines 1-4, index is built over relations), wherein said preprocessing step comprises:

receiving a query having aggregation constraint and applying said index to look up a result in response to said query having aggregation constraints (paragraph 25, database server receives and processes queries to retrieve , delete and update using SQL which includes aggregation constraints and paragraph 26, lines 2-4, as possessing the query using an index).

Chaudhuri does not explicitly teach identifying a dominating vector of constants , c' for a given n-dimensional vector of constants, c . Caudill does teach this limitation (paragraph 148 as n-dimensional , vector constant) to improve performance and rapid , efficient relevancy ranking and clustering. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Chaudhuri with identifying a c' for a given n-dimensional vector of constants, c to improve performance and rapid , efficient relevancy ranking and clustering as described by Caudill (paragraph 9).

Art Unit: 2167

As per claim 7, same as claim argument above and Chaundhuri teaches: obtaining a partition defined by said vector c and said vector c' (paragraph 9, as candidate data structures equate to the index containing pointers to partitions).

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0003004 A1 issued to Surajit Chaudhuri et al. ("Chaudhuri") in view of US 2004/0111408 issued to Maureen Caudill et al ("Caudill") as applied to claim 7 above, and further in view of US Patent 6,122,628 issued to Vittorio Castelli et al ("Castelli").

As per claim 8, same as claim arguments above and Chaundhuri in view of Caudill do not explicitly teach wherein said partition is expressed as a hyper rectangle. Castelli does teach this limitation (column 17, lines 62- column 18 lines 11, hyper rectangles) to generate compact indexes such that most of the index can reside in main memory . It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chaundhuri in view of Caudill with wherein said partition is expressed as a hyper rectangle to generate compact indexes such that most of the index can reside in main memory as described by Castelli (abstract).

As per claim 9, same as claim arguments above and Chaundhuri in view of Caudill do not explicitly teach inserting said partition into a multidimensional data structure. Castelli does teach inserting said partition into a multidimensional data structure (column 12, lines 62-63 as R-tree) to generate compact indexes such

Art Unit: 2167

that most of the index can reside in main memory. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chaundhuri in view of Caudill with inserting said partition into a multidimensional data structure to generate compact indexes such that most of the index can reside in main memory as described by Castelli (abstract).

As per claim 10, same as claim arguments above and Castelli teaches:

wherein said multidimensional data structure is an R-Tree (column 12, lines 62-63 as R-tree).

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan F. Rayyan whose telephone number is 571-272-1675. The examiner can normally be reached on M-F, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2167

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



SR

7/3/2007



JOHN COTTINGHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100